Biomeditsinskaya Khimiya 2012 vol.58 N3, pages 272-280

Binase penetration into alveolar epithelial cells does not induce cell death

Cabrera Fuentes H., Katacheva N., Mukhametshina R., Zelenikhin P., Kolpakov A., Barreto G., Preissner K., Ilinskaya O.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Microbial ribonucleases possess a broad spectra of biological activities, demonstrating stimulating properties at low concentrations and cytotoxicity and genotoxicity at high concentrations. The mechanisms of their penetration into the cells are not clear so far. This research is aimed to the study of Bacillus intermedins RNase (binase) penetration in alveolar lung epithelial cells - pneumocytes of type II. Using immunofluorescence we have shown for the first time have internalization of binase by primary non-differentiated pneumocytes ATII. The enzyme did not penetrate in pneumocytes MLE-12, which also derived from type II cells. However, binase was cytotoxic towards tumor MLE-12 cells, but not ATII cells. The obtained results testified the higher sensitivity of tumor cells towards binase compared with normal cells, and also showed that penetration of the enzyme into alveolar cells did not directly correlated with the cell death.

Keywords

Alveolar epithelial cells type II, ATII, Binase, Cytotoxicity, Immunofluorescence, Internalization, MLE-12